5/29

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see page 6

RAW SEQUENCE LISTING   DATE: 05/23/2002
PATENT APPLICATION: US/09/769,744A   TIME: 17:42:26

Input Set : D:\sequence listing for 09-769744.txt
Output Set: N:\CRF3\05232002\I769744A.raw

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 3 <110> APPLICANT: Le Page, Richard WF
 4         Wells, Jeremy M
 5         Hanniffy, Sean B
 6         Hansbro, Philip M
 8 <120> TITLE OF INVENTION: Proteins
10 <130> FILE REFERENCE: PWC/P21122WO
12 <140> CURRENT APPLICATION NUMBER: US 09/769744A
13 <141> CURRENT FILING DATE: 2001-01-26
15 <150> PRIOR APPLICATION NUMBER: PCT/GB99/02452
16 <151> PRIOR FILING DATE: 1999-07-27
18 <150> PRIOR APPLICATION NUMBER: GB 9816336.3
19 <151> PRIOR FILING DATE: 1998-07-27
21 <150> PRIOR APPLICATION NUMBER: US 60/125329
22 <151> PRIOR FILING DATE: 1999-03-19
24 <160> NUMBER OF SEQ ID NOS: 196
26 <170> SOFTWARE: PatentIn Ver. 2.1
28 <210> SEQ ID NO: 1
29 <211> LENGTH: 1200
30 <212> TYPE: DNA
31 <213> ORGANISM: Streptococcus pneumoniae
33 <400> SEQUENCE: 1
34 atgagaaata tgtgggttgt aatcaaggaa acctatcttc gacatgtcga gtcatggagt 60
35 ttcttcttta tggtgatttc gccgttcctc tttttaggaa tctctgtagg aattgggcat 120
36 ctccaaggtt cttctatggc taaaaataat aaagtggcag tagtgacaac agtgccatct 180
37 gtagcagaag gactgaagaa tgtaaatggt gttaacttcg actataaaga cgaagcaagt 240
38 gccaaagaag caattaaaga agaaaaatta aaaggttatt tgaccattga tcaagaagat 300
39 agtgttctaa aggcagttta tcatggcgaa acatcgcttg aaaatggaat taaatttgag 360
40 gttacaggta cactcaatga actgcaaaat cagcttaatc gttcaactgc ttccttgtct 420
41 caagagcagg aaaaacgctt agcgcagaca attcaattca cagaaaagat tgatgaagcc 480
42 aaggaaaata aaaagtttat tcaaacaatt gcagcaggtg ccttaggatt ctttctttat 540
43 atgattctga ttacctatgc gggtgtaaca gctcaggaag ttgccagtga aaaaggcacc 600
44 aaaattatgg aagtcgtttt ttctagcata agggcaagtc actatttcta tgcgcggatg 660
45 atggctctgt ttctagtgat tttaacgcat attgggatct atgttgtagg tggtctggct 720
46 gccgtttttgc tctttaaaga tttgccattc ttggctcagt ctggtatttt ggatcacttg 780
47 ggagatgcta tctcactgaa taccttgctc tttattttga tcagtctttt catgtacgta 840
48 gtcttggcag ccttcctagg atctatggtt tctcgtcctg aggactcagg gaaagccttg 900
49 tcgcctttga tgattttgat tatgggtggt tttttggag tgacagctct aggtgcagct 960
50 ggtgacaatc tcctcttgaa gattggttct tatattccct ttatttcgac cttctttatg 1020
51 ccgtttcgaa cgattaatga ctatgcgggg ggagcagaag catggatttc acttgctatt 1080
52 acagtgattt ttgcggtggt agcaacagga tttatcggac gcatgtatgc tagtctcgtt 1140
53 cttcaaacgg atgatttagg gatttggaaa acctttaaac gtgccttatc ttataaatag 1200
56 <210> SEQ ID NO: 2
57 <211> LENGTH: 399
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Input Set : **D:\sequence listing for 09-769744.txt**
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58 <212> TYPE: PRT
59 <213> ORGANISM: Streptococcus pneumoniae
61 <400> SEQUENCE: 2
62 Met Arg Asn Met Trp Val Val Ile Lys Glu Thr Tyr Leu Arg His Val
63   1               5                  10                  15
65 Glu Ser Trp Ser Phe Phe Phe Met Val Ile Ser Pro Phe Leu Phe Leu
66              20                  25 .                30
68 Gly Ile Ser Val Gly Ile Gly His Leu Gln Gly Ser Ser Met Ala Lys
69          35                  40                  45
71 Asn Asn Lys Val Ala Val Val Thr Thr Val Pro Ser Val Ala Glu Gly
72      50                  55                  60
74 Leu Lys Asn Val Asn Gly Val Asn Phe Asp Tyr Lys Asp Glu Ala Ser
75  65                  70                  75                  80
77 Ala Lys Glu Ala Ile Lys Glu Glu Lys Leu Lys Gly Tyr Leu Thr Ile
78              85                  90                  95
80 Asp Gln Glu Asp Ser Val Leu Lys Ala Val Tyr His Gly Glu Thr Ser
81              100                 105                 110
83 Leu Glu Asn Gly Ile Lys Phe Glu Val Thr Gly Thr Leu Asn Glu Leu
84          115                 120                 125
86 Gln Asn Gln Leu Asn Arg Ser Thr Ala Ser Leu Ser Gln Glu Gln Glu
87      130                 135                 140
89 Lys Arg Leu Ala Gln Thr Ile Gln Phe Thr Glu Lys Ile Asp Glu Ala
90 145                 150                 155                 160
92 Lys Glu Asn Lys Lys Phe Ile Gln Thr Ile Ala Ala Gly Ala Leu Gly
93              165                 170                 175
95 Phe Phe Leu Tyr Met Ile Leu Ile Thr Tyr Ala Gly Val Thr Ala Gln
96              180                 185                 190
98 Glu Val Ala Ser Glu Lys Gly Thr Lys Ile Met Glu Val Val Phe Ser
99          195                 200                 205
101 Ser Ile Arg Ala Ser His Tyr Phe Tyr Ala Arg Met Met Ala Leu Phe
102     210                 215                 220
104 Leu Val Ile Leu Thr His Ile Gly Ile Tyr Val Val Gly Gly Leu Ala
105 225                 230                 235                 240
107 Ala Val Leu Leu Phe Lys Asp Leu Pro Phe Leu Ala Gln Ser Gly Ile
108              245                 250                 255
110 Leu Asp His Leu Gly Asp Ala Ile Ser Leu Asn Thr Leu Leu Phe Ile
111              260                 265                 270
113 Leu Ile Ser Leu Phe Met Tyr Val Val Leu Ala Ala Phe Leu Gly Ser
114          275                 280                 285
116 Met Val Ser Arg Pro Glu Asp Ser Gly Lys Ala Leu Ser Pro Leu Met
117     290                 295                 300
119 Ile Leu Ile Met Gly Gly Phe Phe Gly Val Thr Ala Leu Gly Ala Ala
120 305                 310                 315                 320
122 Gly Asp Asn Leu Leu Leu Lys Ile Gly Ser Tyr Ile Pro Phe Ile Ser
123              325                 330                 335
125 Thr Phe Phe Met Pro Phe Arg Thr Ile Asn Asp Tyr Ala Gly Gly Ala
126              340                 345                 350
128 Glu Ala Trp Ile Ser Leu Ala Ile Thr Val Ile Phe Ala Val Val Ala
129          355                 360                 365
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Input Set : **D:\sequence listing for 09-769744.txt**
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131 Thr Gly Phe Ile Gly Arg Met Tyr Ala Ser Leu Val Leu Gln Thr Asp
132     370             375             380
134 Asp Leu Gly Ile Trp Lys Thr Phe Lys Arg Ala Leu Ser Tyr Lys
135 385             390             395
139 <210> SEQ ID NO: 3
140 <211> LENGTH: 1125
141 <212> TYPE: DNA
142 <213> ORGANISM: Streptococcus pneumoniae
144 <400> SEQUENCE: 3
145 cctgggaaag tcttgaaaat tatgatagaa tggtggaagg aaaaattcag gagagtagta 60
146 gtgactcaaa atgttgaaag tcttctcgta tccattgtaa tcagtgcata caatgaagaa 120
147 aaatatctgc ctggtctaat tgaagactta aaaaatcaaa cctatcctaa agaggatatt 180
148 gaaattctat ttataaatgc tatgtccaca gatgggacca cagctatcat tcagcaattt 240
149 ataaaggaag atacagagtt taactcaatt agattgtata acaatcctaa gaaaaatcaa 300
150 gctagtggtt ttaacctggg agttaaacat tctgtagggg accttatttt aaaaattgat 360
151 gctcattcaa aagttactga gacttttgta atgaacaatg tggctattat tcaacaaggt 420
152 gaatttgtct gtggggggcc tagaccgacg attgtcgaag gaaaaggaaa atgggcagag 480
153 accttgcatc ttgttgagga aaatatgttt ggcagtagca ttgccaatta tcgaaatagt 540
154 tctgaggata gatatgtttc ttctattttt catggaatgt ataaacgaga ggttttccag 600
155 aaggttggtt tagtaaatga gcaacttggc cgaactgaag ataatgatat tcattataga 660
156 attcgagaat atggttataa aatccgctat agcccaagta ttctatctta tcagtatatt 720
157 cgaccaacat tcaagaaaat gctgcatcaa aagtattcaa atggtttgtg gattggcttg 780
158 acaagtcatg ttcagtttaa gtgtttatca ttatttcact atgttccttg tttatttgtt 840
159 ttgagtcttg tgtttagtct agcattgtta ccgatcacat tcgtattcat aactttacta 900
160 ttaggtgcct attttctact tttgtcatta ctcactttgc tgactttatt aaaacataaa 960
161 aatggatttc taattgtgat gccctttatt ttattttcca ttcactttgc ttatggcctt 1020
162 gggacgattg taggtttaat tagaggattt aaatggaaga aggagtacaa gagaacaata 1080
163 atttatttgg ataaaataag ccaaataaat caaaatatgc tataa 1125
166 <210> SEQ ID NO: 4
167 <211> LENGTH: 374
168 <212> TYPE: PRT
169 <213> ORGANISM: Streptococcus pneumoniae
171 <400> SEQUENCE: 4
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173 1               5               10              15
175 Arg Arg Val Val Val Thr Gln Asn Val Glu Ser Leu Leu Val Ser Ile
176             20              25              30
178 Val Ile Ser Ala Tyr Asn Glu Glu Lys Tyr Leu Pro Gly Leu Ile Glu
179             35              40              45
181 Asp Leu Lys Asn Gln Thr Tyr Pro Lys Glu Asp Ile Glu Ile Leu Phe
182         50              55              60
184 Ile Asn Ala Met Ser Thr Asp Gly Thr Thr Ala Ile Ile Gln Gln Phe
185 65              70              75              80
187 Ile Lys Glu Asp Thr Glu Phe Asn Ser Ile Arg Leu Tyr Asn Asn Pro
188             85              90              95
190 Lys Lys Asn Gln Ala Ser Gly Phe Asn Leu Gly Val Lys His Ser Val
191             100             105             110
193 Gly Asp Leu Ile Leu Lys Ile Asp Ala His Ser Lys Val Thr Glu Thr
194         115             120             125
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RAW SEQUENCE LISTING   DATE: 05/23/2002
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Input Set : D:\sequence listing for 09-769744.txt
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196 Phe Val Met Asn Asn Val Ala Ile Ile Gln Gln Gly Glu Phe Val Cys
197     130                 135                 140
199 Gly Gly Pro Arg Pro Thr Ile Val Glu Gly Lys Gly Lys Trp Ala Glu
200 145                 150                 155                 160
202 Thr Leu His Leu Val Glu Glu Asn Met Phe Gly Ser Ser Ile Ala Asn
203                 165                 170                 175
205 Tyr Arg Asn Ser Ser Glu Asp Arg Tyr Val Ser Ser Ile Phe His Gly
206         .       180             185             190
208 Met Tyr Lys Arg Glu Val Phe Gln Lys Val Gly Leu Val Asn Glu Gln
209         195                 200                 205
211 Leu Gly Arg Thr Glu Asp Asn Asp Ile His Tyr Arg Ile Arg Glu Tyr
212     210                 215                 220
214 Gly Tyr Lys Ile Arg Tyr Ser Pro Ser Ile Leu Ser Tyr Gln Tyr Ile
215 225                 230                 235                 240
217 Arg Pro Thr Phe Lys Lys Met Leu His Gln Lys Tyr Ser Asn Gly Leu
218             '   245                 250                 255
220 Trp Ile Gly Leu Thr Ser His Val Gln Phe Lys Cys Leu Ser Leu Phe
221             260                 265                 270
223 His Tyr Val Pro Cys Leu Phe Val Leu Ser Leu Val Phe Ser Leu Ala
224         275                 280                 285
226 Leu Leu Pro Ile Thr Phe Val Phe Ile Thr Leu Leu Leu Gly Ala Tyr
227     290 .               295                 300
229 Phe Leu Leu Leu Ser Leu Leu Thr Leu Leu Thr Leu Leu Lys His Lys
230 305                 310                 315                 320
232 Asn Gly Phe Leu Ile Val Met Pro Phe Ile Leu Phe Ser Ile His Phe
233             325                 330                 335
235 Ala Tyr Gly Leu Gly Thr Ile Val Gly Leu Ile Arg Gly Phe Lys Trp
236             340                 345                 350
238 Lys Lys Glu Tyr Lys Arg Thr Ile Ile Tyr Leu Asp Lys Ile Ser Gln
239         355                 360                 365
241 Ile Asn Gln Asn Met Leu
242     370
246 <210> SEQ ID NO: 5
247 <211> LENGTH: 696
248 <212> TYPE: DNA
249 <213> ORGANISM: Streptococcus pneumoniae
251 <400> SEQUENCE: 5
252 atgatgaaag aacaaaatac gatagaaatc gatgtatttc aattagttaa aagcttgtgg 60
253 aaacgcaagc taatgatttt aatagtggca cttgtgacag gtgcggggggc ttttgcatat 120
254 agcactttta ttgttaagcc agaatatacg agtaccacgc gaatttacgt agtgaatcgc 180
255 aatcaaggag acaagccggg gttgacaaat caggatttgc aggcaggaac ttatctggta 240
256 aaagactacc gtgagattat cctttcgcag gatgtttttgg aggaagttgt ttctgatttg 300
257 aaactagatt tgacgccaaa aggtttggct aataaaatta aagtgacagt accagttgat 360
258 acccgtattg tctctatttc agttaatgat cgagttcctg aagaggcaag ccgtatcgct 420
259 aactctttga gagaagtagc tgctcaaaaa attatcagta ttactcgtgt ttctgacgtg 480
260 acaacactgg aggaggcaag gccggcgata tccccgtctt cgccaaatat aaaacgcaat 540
261 acactaattg gttttttggc aggggtgatt ggaactagtg ttatagttct tcatcttgaa 600
262 ctttttggata ctcgtgtgaa acgtccggaa gatatcgaaa atacattgca gatgacactt 660
263 ttgggagttg tgccaaactt gggtaagttg aaatag 696
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PATENT APPLICATION: US/09/769,744A   TIME: 17:42:26

Input Set : D:\sequence listing for 09-769744.txt
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266 <210> SEQ ID NO: 6
267 <211> LENGTH: 231
268 <212> TYPE: PRT
269 <213> ORGANISM: Streptococcus pneumoniae
271 <400> SEQUENCE: 6
272 Met Met Lys Glu Gln Asn Thr Ile Glu Ile Asp Val Phe Gln Leu Val
273  1               5                  10                  15
275 Lys Ser Leu Trp Lys Arg Lys Leu Met Ile Leu Ile Val Ala Leu Val
276             20                  25                  30
278 Thr Gly Ala Gly Ala Phe Ala Tyr Ser Thr Phe Ile Val Lys Pro Glu
279         35                  40                  45
281 Tyr Thr Ser Thr Thr Arg Ile Tyr Val Val Asn Arg Asn Gln Gly Asp
282      50                  55                  60
284 Lys Pro Gly Leu Thr Asn Gln Asp Leu Gln Ala Gly Thr Tyr Leu Val
285  65                  70                  75                  80
287 Lys Asp Tyr Arg Glu Ile Ile Leu Ser Gln Asp Val Leu Glu Glu Val
288             85                  90                  95
290 Val Ser Asp Leu Lys Leu Asp Leu Thr Pro Lys Gly Leu Ala Asn Lys
291             100                 105                 110
293 Ile Lys Val Thr Val Pro Val Asp Thr Arg Ile Val Ser Ile Ser Val
294             115                 120                 125
296 Asn Asp Arg Val Pro Glu Glu Ala Ser Arg Ile Ala Asn Ser Leu Arg
297      130                 135                 140
299 Glu Val Ala Ala Gln Lys Ile Ile Ser Ile Thr Arg Val Ser Asp Val
300 145                 150                 155                 160
302 Thr Thr Leu Glu Glu Ala Arg Pro Ala Ile Ser Pro Ser Ser Pro Asn
303             165                 170                 175
305 Ile Lys Arg Asn Thr Leu Ile Gly Phe Leu Ala Gly Val Ile Gly Thr
306             180                 185                 190
308 Ser Val Ile Val Leu His Leu Glu Leu Leu Asp Thr Arg Val Lys Arg
309             195                 200                 205
311 Pro Glu Asp Ile Glu Asn Thr Leu Gln Met Thr Leu Leu Gly Val Val
312      210                 215                 220
314 Pro Asn Leu Gly Lys Leu Lys
315 225                 230
319 <210> SEQ ID NO: 7
320 <211> LENGTH: 555
321 <212> TYPE: DNA
322 <213> ORGANISM: Streptococcus pneumoniae
324 <400> SEQUENCE: 7
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326 gtagatgtct tgcgtcgagc caatatcaca tgtgatatgg ttggttttga agagcaagta 120
327 acgggttcgc atgcaatcca agtaagagca gatcatgtct ttgatggaga tttatcagac 180
328 tatgatatga ttgttcttcc tggaggtatg cctggttctg cacatttacg tgataatcag 240
329 accttgattc aagaattgca aagcttcgag caagaaggga agaaactagc agccatttgt 300
330 gcggcaccaa ttgccctcaa tcaagcagag atattgaaaa ataagcgata cacttgttat 360
331 gacggcgttc aagagcaaat ccttgatggt cactacgtca aggaaacagt agtggtagat 420
332 ggtcagttga caaccagtcg gggtccttca acagcccttg cctttgccta cgagttggtg 480
333 gagcaactag gaggggacgc agagagttta cgaacaggaa tgctctatcg agatgtcttt 540
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 05/23/2002
PATENT APPLICATION: US/09/769,744A   TIME: 17:42:27

Input Set : D:\sequence listing for 09-769744.txt
Output Set: N:\CRF3\05232002\I769744A.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:182; Xaa Pos. 3

VERIFICATION SUMMARY   DATE: 05/23/2002
PATENT APPLICATION: US/09/769,744A   TIME: 17:42:27

Input Set : **D:\sequence listing for 09-769744.txt**
Output Set: **N:\CRF3\05232002\I769744A.raw**

L:9148 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:182 after pos.:0